Welcome to Intensive Care at Mona Vale Hospital. Please read the accompanying orientation document prepared for Medical Students attending the ICU section of the Critical Care Block.

Medical students are an important part of the Intensive Care team. The aim of an elective term in ICU is to gain experience in the recognition and management of critically ill patients.

**ICU: Staff members**

The Intensive Care Service is under the management of the following team members:

**Director:** A/Prof Paul Phipps.

**VMO:**
- Dr Chris Barnes (Director Div. Medicine & Critical Care)
- Dr Stephen Nolan

**Locum VMO**
- Dr Mark Daley
- Dr Mark Lucey
- Dr Michelle Franks
- Dr Robert Hislop

**Clinical Manager**
(Div. Medicine & Critical Care): Fiona Allsop

**Nurse Manager:** Marissa Dodds

**Clinical Nurse Consultant (across sites):** Kylie Garnsworthy

**Unit Secretaries:** Nil
**Unit Receptionists:** Nil

**Ward Clerk:** Nil
Medical Students are expected to attend rounds, be involved in patients' assessment and care, attend cardiac arrest/trauma calls and participate in the formal and informal teaching and clinical education sessions. They will have an opportunity to experience General Intensive Care and Coronary Care.

They should expect to gain exposure to some of the following aspects of intensive care medicine:

1. **Initial assessment of the deteriorating patient.** By attending calls from the wards and Emergency department with the ICU SRMO, including cardiac arrest and trauma calls, students will be involved in the assessment and initial resuscitation of critically ill patients and decisions regarding urgency and appropriateness of ICU admission.

2. **Diagnostic and therapeutic interventions.** During ward rounds the clinical decisions regarding the specific management of medical and surgical conditions in critically ill patients will be discussed. Exposure to ICU related topics such as cardiopulmonary resuscitation, invasive monitoring, fluid management, use of inotropes and vasoconstrictors, ventilatory support, will be gained.

3. **Pathophysiology and invasive monitoring.** Medical students will be able to directly observe the response of physiological and clinical variables such as heart rate, urine output, central venous pressure, oxygenation to therapeutic interventions such as intravenous fluid resuscitation and inotrope therapy. Thus they will increase their knowledge of physiology and pathophysiology at the bedside.

4. **Diagnostic and therapeutic procedures.** Medical students will be introduced to invasive procedures and will have an opportunity to observe techniques of many of them under supervision. Examples include: Insertion of arterial and central venous lines, endotracheal intubation, intercostal catheter insertion.

5. **End of life decision making.** Approximately 20% of patients admitted to General Intensive Care die. Students will be involved in decisions regarding limiting of invasive therapy, medical consensus, family conferences and the medical management of the dying patient.

Medical students will be expected to follow two or three patients through their admission, assess them, examine them, read up on specific issues, help direct their ICU management and present their cases on the ward rounds.

**The Intensive Care Team**

Intensive Care is a multidisciplinary team, lead by the Intensive Care specialist:
Medical team:  
Intensivist, SRMO in Intensive Care, Medical Students  

Nursing team:  
Registered ICU Nurse, trainee registered nurses and nursing students. There is a nurse manager in charge of ICU/CCU.  

Allied health Team:  
Physiotherapy, Dietician, Speech pathologist, Pharmacist

Intensive care specialists are either present or readily available in the unit at all times during working hours. Intensive care specialists are available to attend the Unit within 20 to 30 minutes of a call at any time out of hours.

The types of patients managed in ICU

A) Mona Vale Intensive Care Unit is classified as a Level 4 ICU by the NSW Department of Health. It functions as an Intensive Care and Coronary Care unit. It is capable of providing many forms of support to critically ill patients with disease processes such as:

I) Multiple Organ System Failure  
II) Respiratory failure requiring monitoring/ventilatory support  
III) Cardiovascular failure requiring haemodynamic monitoring/support  
IV) Acute Metabolic Illness  
V) Post-operative patients  
VI) Post anaesthesia complications  
VII) Cardiac disease such as ischaemic heart disease and arrhythmias

B) Mona Vale ICU does NOT provide the following invasive monitoring/treatment to critically ill patients.

I) Renal replacement therapy (haemodialysis)  
II) Pulmonary artery catheterisation or monitoring  
III) Prolonged or complex mechanical ventilation  
IV) Cardiothoracic surgical care  
V) Neurosurgical care

Daily Routine of Medical Team/Medical Students

A) Intensive care medicine hinges on frequent examination and review of your patient. The critically ill can be stable for hours, and then rapidly decompensate, however this pattern can be averted with vigilant review and attention to detail.  

B) The following is the usual routine for your day in ICU.
0800 - 0930:
Get hand over from the night SRMO and examine and review the patients under your care for that shift, both ICU and Coronary care patients.
Rewrite fluid orders for the day on the flowchart.
Act on any results that need urgent attention.

0930 – 1100:
Morning round with the Intensivist. **It is the ICU SRMO’s responsibility to take the ICU admissions book on the ward round and fill in the columns for ICU data collection on a daily basis.**

Rounds involve presenting full history and examination on new admissions with a current problem summary and a management plan for the day.
Old patients require a briefer summary of recent changes as well as a current problem summary and management plan.

1030 - 1230:
Review of X-rays with the Intensivist and review microbiology results.
Ward rounds with coronary care physicians as they present to the unit

1600:
Ward round with the Intensivist.

2000:
Hand over to the night SRMO.

2030-2200
Night SRMO reviews patients.
Intensivists will usually call in for a phone round before going to bed.

2200-2400
Hand over from evening ward RMO. Round of all inpatient wards identifying those patients who may need close observation overnight and completing clinical care as required such as patient review, canulation and fluid orders. Blood transfusions overnight are discouraged. The ICU SRMO is not expected to assist in theatre.

0400-0600:
Collect blood samples. Courrier departs at 0100, 0300, 0500, 0700 for RNSH

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**ICU meetings/activities**

A) There are a number of meetings and teaching sessions available to the ICU staff.
I) Thursday 1400 monthly M&M meeting in conjunction with Emergency Department Staff. Intensivist on call and Emergency department Specialists attend. You will be required to present one or more cases at this meeting and discuss management issues that pertain to the case. This is a good opportunity to ask questions and obtain some case based teaching.

II) There is a joint ED and ICU teaching timetable you are expected to attend. A copy of the timetable is posted in ICU. The teaching is provided by Consultants and registrars and covers many ED and ICU based topics, generally at 1400 on Tuesdays and Wednesdays.

III) RMO teaching sessions run by the hospital on Wednesday and Friday lunchtime (lunch usually included)

IV) In-promtu teching sesions are often given by Intensivists during the day.

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**General Information for ICU SRMO/Medical students**

**Intensive Care Admissions**

1) Arranging ICU admissions

All admission requests are to be documented in the Admission Request column of the nursing roster book on the main workstation.

A) Emergency admissions

I) All admission inquiries to ICU are to be directed to the ICU Registrar or SRMO on duty.

II) They will then review the patient and discuss the case with the Intensivist on duty who will make a decision regarding admission.

III) Direct communication between admitting consultant and Intensivist is encouraged. The Intensivist would normally then instruct the ICU SRMO to review the patient. Documentation of the assessment and plan in the patients notes is essential.

IV) No patient may be admitted without notifying the Intensivist and the ICU nurse in charge.

V) Similarly, no patient should be refused admission without discussing it with the Intensivist. In the case of refused admission, the Intensivist should talk directly to the patient's consultant.

B) Elective admissions
I) If a surgeon, anaesthetist or physician would like to arrange a bed for post op care for elective surgery, the team should make a request to the Intensive Care Specialist either directly or via the ICU Registrar or SRMO. All requests must be discussed with the Intensive care specialist on call who will accept or decline the admission. If accepted, the patient details are to be entered into the admission request column in the Nursing rosterbook. If admission is declined, the Intensivist is expected to talk directly to the referring consultant.

II) In general elective beds are assigned on a first-come/first-serve basis but clinical necessity is also taken into account.

III) The surgical team/anaesthetist must contact the ICU NUM or Nurse in charge on the day of surgery prior to commencing the case to confirm bed availability.

C) Any admission refusal, and the reason for same, should be documented in the rosterbook.

2) ICU admission procedure

A) Be present and receive the hand over from the accompanying Medical Officer in the case of transfer to ICU from theatre.

B) The priorities are:

I) Stabilise the patient
   a) “Stabilise” involves Airway, Breathing and Circulation management.
   b) Get help from the Intensivist if you have any concerns or questions.

II) Sort out the history and examine the patient
   a) Intensive Care patients are complicated patients and often have complex medical histories or hospital progress prior to admission.
   b) The illness that has brought them to ICU is often multifactorial.
   c) An important part of Intensive Care management is the ability to assimilate all aspects of the critically ill patient. It is essential therefore to document the medical history in a detailed fashion. The importance of proper clinical examination in the ICU can not be overemphasised.
   d) When you have completed the history and examination, an admission summary should be entered in the patients notes.
   e) Diagnoses or clinical impressions and plans must be recorded. Also record all lines and tubes in place already or inserted during admission.

III) Order and/or perform relevant investigations as agreed with Intensivist
a) FBC, Coags, U&E, Ca, Mg, PO₄, LFTs, glucose, ABG, ECG, CXR are usually performed as a baseline as well other relevant investigations

3) Responsibility of ward medical and surgical teams
   A) The medical management of the patients in ICU is the responsibility of the ICU team with appropriate consultation. Ward teams are encouraged to follow the patient's progress and discuss issues with the ICU team. Ward teams must not change or commence medications or order tests. Suggestions for management are gratefully received by talking to the Intensive care team. In particular, discussion with patients and families about therapy, prognosis and end of life matters should be left to the intensivist after medical consensus has been sought. This will avoid unnecessary mixed messages.
   B) Surgical teams are encouraged to make clear surgical decisions regarding their patients such as drain or suture removal and surgical management of surgical complications such as bleeding. The medical management will be the responsibility of the Intensivist on call with appropriate consultation.

Coronary Care Admissions
   A) Coronary care patients are admitted under the physician of the day. The ICU SRMO is responsible for the coronary care patients and will liaise with the relevant physician regarding management. The Intensivist only needs to be notified of their admission if the patient will be occupying the last ICU bed. Coronary care patients may be transferred to the care of the Intensivist in the following circumstances:
      I) Require insertion and management of temporary pacing wire
      II) Require non-invasive or invasive ventilatory support
      III) Require invasive monitoring and inotrope support
   B) The ward team of the coronary care physician are encouraged to follow the patient’s progress while in coronary care but all management is the responsibility of the Coronary care SRMO.

Discharges
   A) No patient is to be discharged from the ICU without prior discussion with the Intensivist on duty.
   B) Given the complexity of ICU patients, the Team responsible for the patient on the ward should be informed of the patient's discharge preferably on a SRMO or Intensivist-to-consultant level prior to the
patient leaving the unit. If any doubt, the consultant responsible for the patient on the ward should be notified.

C) In general at Mona Vale, the **consultant on call on the date of admission via ED** will look after the patient on the ward at ICU discharge

D) Discharge Summaries should be completed beforehand and entered in the patient's notes.
   I) The summary should be a concise account of the ICU progress and document outstanding issues.
   II) Fluid orders and drug orders are to be filled out on ward forms.

E) Remember to document:
   I) The current clinical status
   II) Relevant investigations
   III) Start and completion of mechanical ventilation
   IV) Other major events during ICU stay; surgery, tracheostomy, abscess drainage, arrhythmias, etc.
   V) Ongoing or unresolved issues of special significance for ongoing care.
   VI) That you have notified the registrar taking over care

2) Patient transfers
   A) Coronary care patients may be transferred to another hospital for therapeutic or diagnostic tests such as coronary angiogram or procedures such as insertion of permanent pacemaker.
   
   B) Intensive care patients are usually transferred for specialist services such as neurosurgical or cardiothoracic surgery or more advanced invasive procedures/monitoring such as renal replacement therapy, advanced mechanical ventilation or cardiovascular monitoring (Pulmonary artery pressures).
   I) The Intensivist will direct the transfer. Communication with accepting medical team and Intensive care team will be required. The Medical retrieval Unit will need to be notified. The patient will require preparation such as invasive lines, sedation/analgesia infusions. The patients notes and imaging will need to be photocopied and a letter written for the accepting team.

**Responsibilities at Night for the Hospital Wards**

The evening RMO will handover to the ICU SRMO prior to going home at 2200.

The ICU SRMO will provide medical cover to the hospital wards from 2200 to 0800.

Responsibilities include:
- Clinical review of patients at request of day teams or evening RMO
- Clinical review of patients at request of ward nursing staff
- Ward round at approx. 11 pm and 2am avoids multiple calls from the same ward.
- Detailed and professional documentation in patients notes is expected
- Blood transfusions overnight are discouraged
- ICU SRMO’s are not expected to assist in theatre
- Communication with the day teams is encouraged via the Handover book located in …

Tests, Results and Reportable Deaths

1) Pathology results
   A) You should already be familiar with the laboratory computer system from other areas of the hospital or from Hospital orientation.
      I) You will need to chase and document the pathology results at the following times:
         a) On the day shift before the morning rounds
            i) Ensure that all the results of tests sent by the night registrar are available.
         b) Later in the day
            i) Any additional tests should be followed up. This is a good time to review microbiology results, which may not have been available in the morning.
         c) After the evening ward round
            i) Further tests may be ordered.
            ii) Don’t forget to follow up on these.
   B) Remember there is no point in ordering a test if no one looks at the result or worse still if no action is taken if a result is abnormal. If you are not sure of the significance of a result ask the Intensivist. Nobody minds being asked.

2) Regular notes, tests and X-rays
   A) A note should be entered detailing the important findings and the management plan on both the morning and evening ward rounds.
   B) At the end of both the day and night shift a concise summary should also be entered including the results of important investigations.
   C) All procedures (Art. Lines, CVC, Intubation etc) should be fully documented including indication, method, drugs used and doses operator and monitoring if relevant.
The daily “routine” blood tests ordered on ICU patients include:

- FBC, INR, APTT
- Urea, creatinine, electrolytes inc. Mg, phosphate, calcium
- LFTs, glucose
- Antibiotic or other drug levels if necessary

All unstable ICU patients get a chest X-ray every day.

Long term patients with minimal change in respiratory function often get a CXR alternate days or only with clinical deterioration. This will be discussed on the ward round.

3) Fluids, Medications and Infusions

A) Fluids:
   - 5% dextrose is used as the maintenance fluid unless otherwise indicated.
   - Rate depends on clinical factors but usually around 1ml/kg/hr
   - Fluids need to be re-charted everyday, preferably before or on the morning ward round.

B) Medications:
   - Medications should be reviewed at least daily. Drug infusions should be written up daily.

C) Coroner’s Cases: Reportable death * means a death:
   - That appears to have been unexpected, unnatural or violent or to have resulted directly or indirectly from accident or injury; or
   - That occurs during an anaesthetic; or
   - That occurs as a result of an anaesthetic and is not due to natural causes; or
   - That occurs as the result of a negligent act or omission of any person; or
   - Of a person who immediately before death was a person held in care; or
   - Of a person whose identity is unknown;

D) Remember this includes anyone who dies as the result of trauma or an accident
   - It is easy to forget this in complex patients who have been in ICU a long time
   - Also don’t forget that
     - anyone who has had an anaesthetic within the previous 24 hours or
b) anyone admitted from institutional care will also be Coroner’s cases.

E) If you are not sure ask the Intensivist on.

F) It is important not to overlook a Coroner’s case as it can become a legal nightmare and may cause the family a great deal of distress.

G) Follow the procedure below:-
   Contact Local Police to explain that a Coronial death has occurred.

H) Explain to the family that the death is being referred to the Coroner and that it will be necessary for someone to identify the body to the police

I) It is important to say this before the relatives leave otherwise it will necessitate calling someone back to perform this duty or worse still, you may find that you can no longer contact them.

J) Complete the Form A of the coronial deposition.

K) If the death is within 24 hours of anaesthesia call the Anaesthetist involved to complete Form B

4) If the case is not referable to the Coroner:
   A) Complete the Death Certification (and Medical Section of the Cremation Certificate.)
   B) Ask the Intensivist if you should request permission for an autopsy from the next-of-kin.
      I) Complete autopsy request form.
      II) Call Department of Anatomical Pathology at RNSH to inform them of autopsy.

Patients temporarily leaving the ICU eg. for CT-scan

A) For a diagnostic test such as a CT scan, ventilated or unstable patients should be accompanied by an ICU nurse and the Intensivist. The ICU SRMO may accompany the patient at the discretion of the Intensivist on call.

B) In the case of stable non-ventilated patients an ICU nurse should accompany the patient.

Consent in ICU

A) ‘Informed Consent’ cannot be obtained from unconscious or confused patients.

B) In general procedures such as intubation, percutaneous intercostal drainage, central venous lines, arterial lines, are deemed to be urgent and can be performed without the need for written consent.
   I) However, if time permits, all procedures should be explained to the patient or next-of-kin and documented in the progress notes.

C) In general, elective procedures, (such as tracheostomy, percutaneous drainage under ultrasound or CT guidance) or major surgical procedures should have a consent form completed. If there
is no next of kin then it may be necessary to involve the Guardianship Board.

**Infection Control**

A) Resistant hospital acquired infection such as MRSA is becoming an important problem in ICU.

B) Expensive antibiotics do not replace simple preventive measures.

C) ALWAYS WASH YOUR HANDS BEFORE AND AFTER EACH PATIENT CONTACT.

   I) The importance of handwashing cannot be overemphasised.

D) For patients known to have MRSA, follow the guidelines below:-

   I) Wash hands on entry to area.

   II) White plastic apron and gloves to be worn when entering the bed area.

   III) Discard gown and gloves before exiting the area.

   IV) Wash hands before leaving the area.

   V) Please read the Northern Beaches ICU Infection control protocol.

**Quality Assurance activities undertaken in ICU**

A) APACHE score (Acute Physiology and Chronic Health Evaluation is a severity of illness assessment) are collected on every ICU patient. Currently at Mona Vale, this data is not collected.

B) Australian Incident Monitoring (AIMS).

I) ICU participates in this.

C) Admission refusal information

I) Is collected by filling out the admission request forms for every admission / refusal

D) Morbidity. - An electronic state-wide system has replaced the traditional Morbidity reporting, the hospital is responsible for informing and training.

**Medical Emergency and cardiac Arrest Teams**

A) Medical Emergency Team. You are required to be a member of the Medical Emergency team and provide a service to the wards to help manage a clinically deteriorating patient. The criteria for calling the MET is displayed in all wards. The team consists of the ICU SRMO and ICU Nurse. During the day and evening, the on-call Medical registrar will also attend. Your job is to assess the patient, initiate management, liaise with the team to inform them of the call and your management plan and follow-up, liaise with the Intensivist if the patient is likely to require ICU or HDU admission and
document your findings and plan in the patients notes. Each MET call should be documented by the nursing staff by filling out the MET form.

B) Cardiac Arrest Team. You are also required to be a member of the Cardiac Arrest (Code Blue) Team. The team configuration and team leader is given in appendix B. You will be leading the arrest if you are the most experienced team member at the time. The new algorithm for Advanced life support is given in appendix C. You will not be expected to be able to intubate but will be expected to maintain a patent airway with bag-mask-valve and guedels airway.